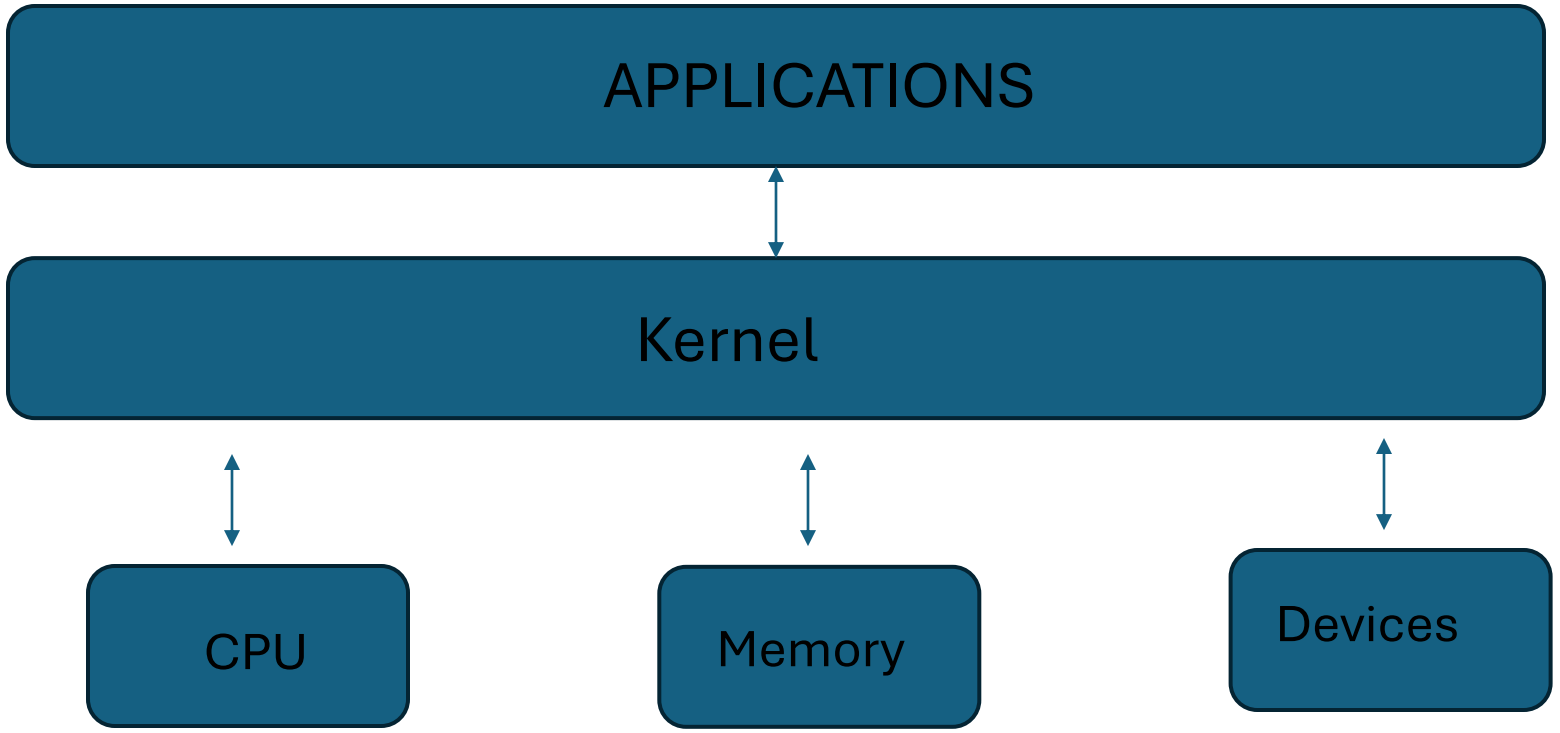
LINUX

Course Content

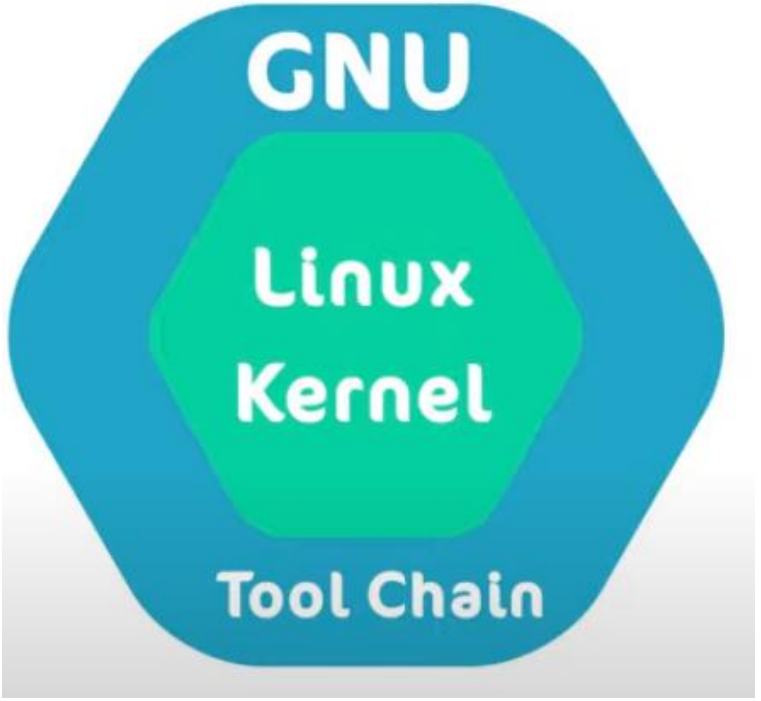
- Operating system Linux
- The concept of working Linux
- Why use Linux
- Command line skills
- Linux files and directories
- Data from files
- Component of desktop and server computers
- Concept of scripting
- Store data in Linux
- Open source and license
- Creating user and groups
- Identify various types of users
- Managing Linux files with permissions

- LINUX is the general name for the device use operating system “LINUX KERNAL”
- Kernel is the main part of operating and responsible for connecting to hardware (RAM, processor, VGA)



- Linux has Kernel which is the main part but also Linux contains “GNU” and “tool chain”
- “GNU” and “tool chain” are libraires to *work the applications.*
- “GNU” and “tool chain” make command to Kernel to achieve the command

with compilers and Shell (terminal).



Linux Has Many Distributions

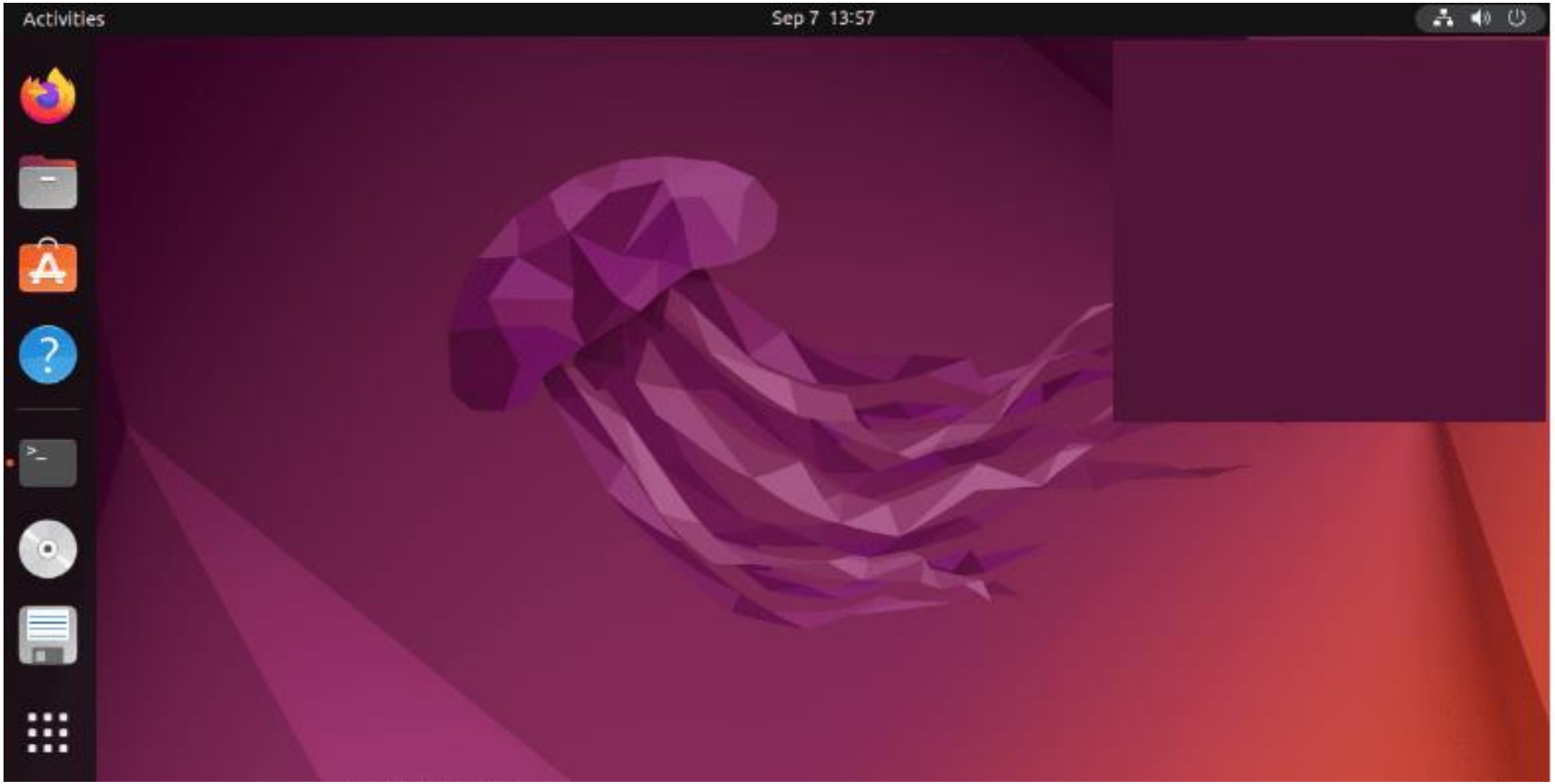
What is "the Shell"?

The shell is a program that takes commands from the keyboard and gives them to the operating system to perform. Nowadays, we have *graphical user interfaces (GUIs) shell* in addition to *command line interfaces (CLIs) shell*.

What's a "Terminal?“
It’s a tool which you can use to pass your shell commands.

- This is a program that opens a black window and lets you interact with the shell. There are a bunch of different terminal emulators we can use.

Linux desktop



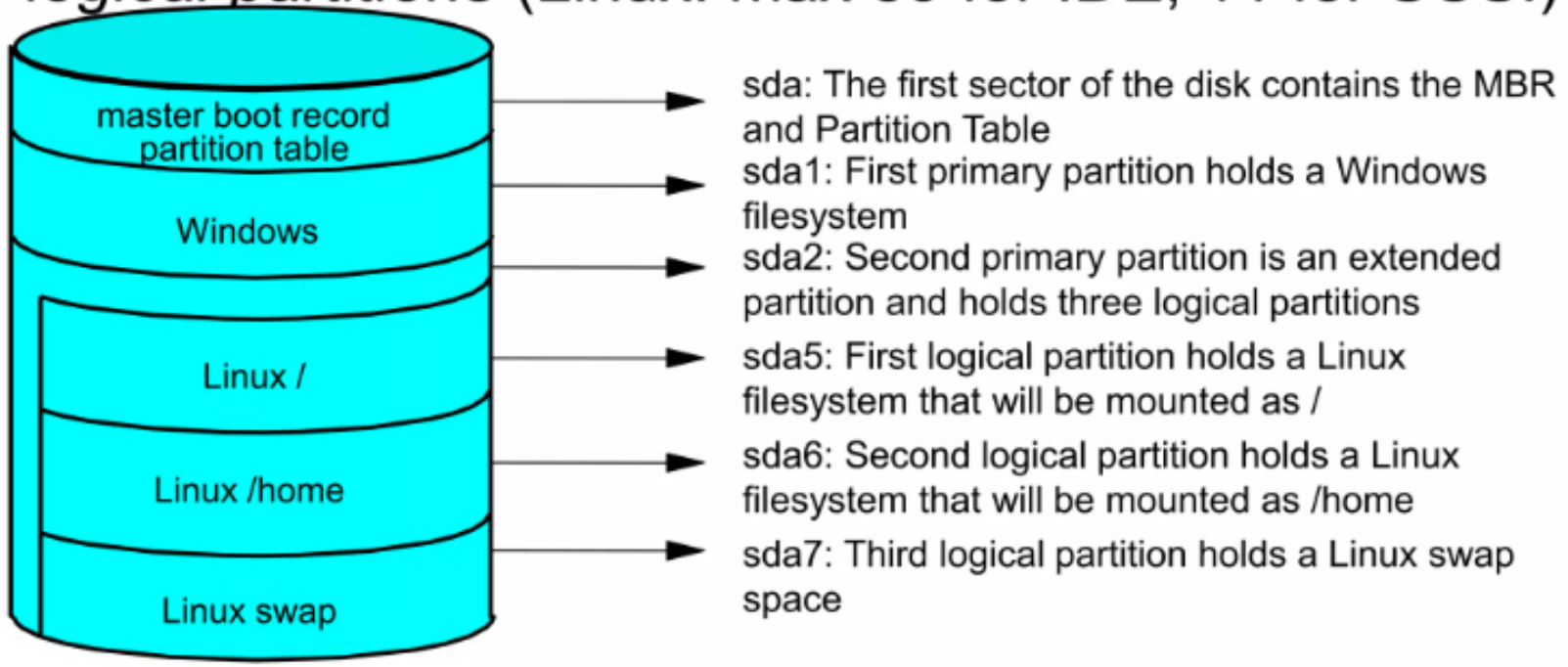
Creating and Managing User Accounts

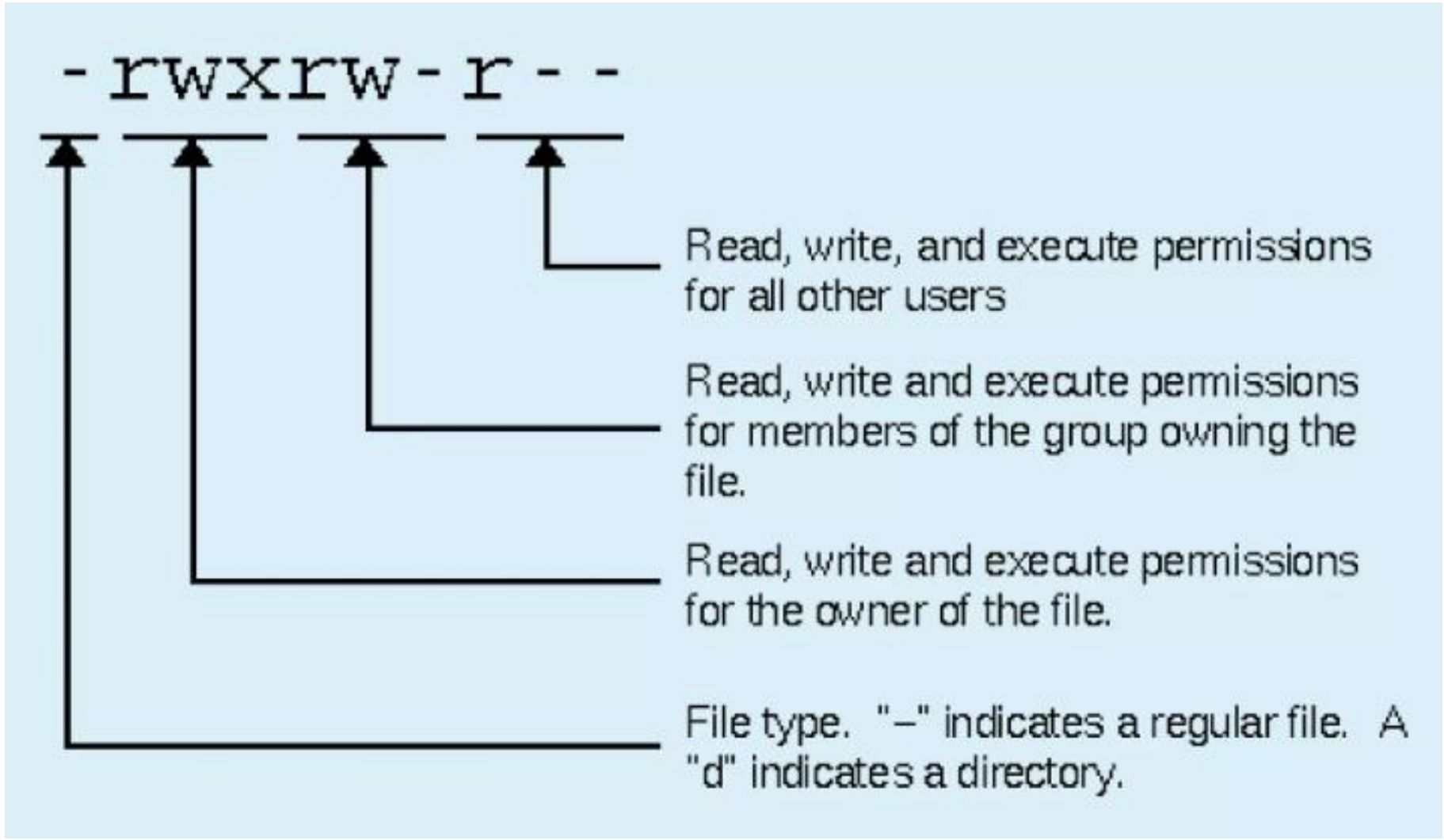
- Using useradd
- Using passwd
- Using usermod
- Using userdel

Devices

Hard disk partitions

- IDE and SCSI hard disks can be partitioned
- Maximum of four *primary partitions*
- One primary partition may be an *extended partition*
- An extended partition can hold an unlimited amount of *logical partitions* (Linux: max 59 for IDE, 11 for SCSI)




-rwxrw-r--
Read, write, and execute permissions for all other users
Read, write and execute permissions for members of the group owning the file.
Read, write and execute permissions for the owner of the file.
File type. "–" indicates a regular file. A "d" indicates a directory.

File permissions

There are two ways to set permissions when using the `chmod` command:

Symbolic mode:

testfile has permissions of `-r--r--r--`

```
                                    U   G   O*
$ chmod g+x testfile       ==>  -r--r-xr--
$ chmod u+wx testfile      ==>  -rwxr-xr--
$ chmod ug-x testfile      ==>  -rw--r--r--
U=user, G=group, O=other (world)
```

File permissions cont.

Absolute mode:

We use octal (base eight) values represented like this:

Letter	Permission	Value
R	read	4
W	write	2
X	execute	1
-	none	0

For each column, User, Group or Other you can set values from 0 to 7. Here is what each means:

0= **---** 1= **--x** 2= **-w-** 3= **-wx**

4= **r--** 5= **r-x** 6= **rw-** 7= **rwx**

File permissions cont.

Numeric mode cont:

Example index.html file with typical permission values:

```
$ chmod 755 index.html
$ ls -l index.html
-rwxr-xr-x  1 root  wheel  0 May 24 06:20 index.html

$ chmod 644 index.html
$ ls -l index.html
-rw-r--r--  1 root  wheel  0 May 24 06:20 index.html
```

Final sheet

Q1

- Why we use linux and compare between linux and windows

Why we use LINUX

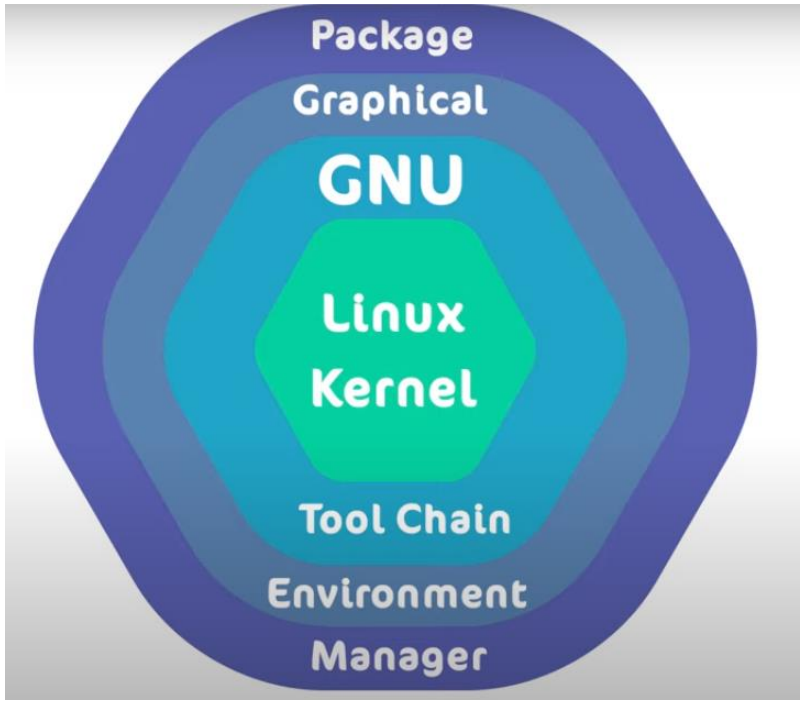
- Costless
- Stable
- Reliable
- extremely powerful
- Highly secure

Q2

What is the distribution?

Linux distribution ((collection))

- Linux distribution (often abbreviated as distro) is an operating system made from a software collection that includes the Linux kernel, GNU, tool chain, desktop environment (KDE, mate,.., and a package management system (with default programs as games,…).



Q3

- By two methods add all permissions for groups and delete the executable permissions for users only, and not allow for others all permissions for the file “new year.txt”.

- 0= `---` 1= `--x` 2= `-w-`
- 3= `-wx` 4= `r--` 5= `r-x`
- 6= `rw-` 7= `rwx`

- **First method**
- `chmod g+x` new year.txt
- `chmod u-x` new year.txt
- `chmod o-rwx` new year.txt

- **Second method**
- `chmod 670` new year.txt